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REVIEWS.

Annual Report of the Department of Health of the City of Minneapolis for the Year ending December 31, 1907.

This report is noticed here because it illustrates a common fallacy in vital statistics. On the first page of the report the Commissioner of Health makes the following statements: "The total number of deaths for the year was 2,959, 135 more than were recorded during 1906. Deducting babies under one week of age, violent deaths, and deaths of non-residents who are brought into our hospitals for treatment, computed on an estimated population of 300,000, the death-rate per thousand is 8.56. This makes Minneapolis the healthiest city in the United States, as no other city of its size can show so low a death-rate."

There have been many attempts on the part of health officers to make an exceptionally good showing by misstatements of facts or by the use of fallacious methods of calculating death-rates. For a statement in three sentences, however, embodying four fallacies to reach a doubtful conclusion, the above quotation is quite typical.

First, it may be asked why the estimated population of Minneapolis was limited to 300,000? To be sure, the Census Office at Washington by their methods would give the city credit for only 285,676 population, or 14,324 less than the above guess of 300,000. While guessing, however, it would be just as easy to make the population 350,000 as 300,000, and it would make the city appear to be healthier.

Second, why stop with the elimination of the deaths of children under one week of age? As this is a purely arbitrary deduction, why not strike out the deaths of children under two, or, better, four weeks of age? This would obviously make the city appear to be considerably more healthy, and possibly Minneapolis would then become the most healthy city in the world. If the health of a city is to be determined by statistical juggling, then the more slow and tedious sanitary processes used in some of the less healthy cities of the United States could be discarded. Why, for instance, attempt to improve milk and water supplies, rigidly inspect food supplies, clean streets, etc., when an easier method yields quicker results?

Third, why deduct deaths from violence from the grand total in calculating the general death-rate? As a matter of fact, some deaths classi-

fied as violent are dependent, to some degree at least, upon climate and other local factors. For example, deaths by sunstroke are classified as violent deaths, but it is obvious that this cause varies in importance with local conditions, including climate. Some authorities, too, presume to think that there is a more or less intimate relation between disease prevalence and accidents. If it is proper to deduct deaths by violence from the grand total of deaths to make a city appear to be healthy, it may be suggested, for the benefit of a rival city, that it would be just as logical to deduct deaths from ill-defined causes, deaths due to old age, and that considerable number of deaths reported as due to "heart failure." If a person dies of old age in a given city, that, of itself, is one of the surest signs that the city is healthy. So why should the death count against the fair reputation of the city by being included in the calculation of its death-rate? Death by "heart failure" may or may not be due to general health and sanitary conditions; but why not give the city the benefit of the doubt, and throw them all out? Obviously, such ill-defined causes as dropsy, found dead, sudden death, etc., should all be eliminated in the manufacture of a healthy city.

Fourth, deaths of non-residents are eliminated from the death-rate calculations in Minneapolis. If care was taken to include in the death-rate (or, better, health-rate) all of the residents of Minneapolis who happened to die outside of the city and some of whose bodies would almost certainly be interred elsewhere, then it might have been excusable to deduct the deaths of non-residents treated in Minneapolis hospitals. It is a poor rule, however, which does not work both ways.

Finally, it may be asked whether the children under one week of age, the non-residents and the decedents by violence, were all carefully deducted from the estimated population. A novice in mathematics can easily see that, if they were not permitted to appear in the dividend, they should also have been cast out of the divisor in the calculation of the "corrected" death-rate. The report does not indicate how many non-residents and children under one week of age died in Minneapolis during 1907. These omissions make it impossible to judge of the importance of the two items, but the 300,000 estimate of population must have included all infants, non-residents, etc., with a few others added for good measure.

A few other cities, notably New York in its weekly health reports, publish what they are pleased to call "corrected" death-rates, in the calculation of which deaths of non-residents and infants under one week of age are excluded. This method, however, is not favored by the highest authorities in vital statistics, and there does not appear to be one sound argument in its favor. In any event the "uncorrected" death-rates should be given, as in the New York reports, so that fair comparison can be made with other cities. To say the least, it is un-

fair to the other less healthy cities to be branded without the chance to get at the real facts in the case.

The writer has no sympathy with attempts to mislead the public by juggling with the death returns. Minneapolis is a comparatively healthy city when judged by its annual death-rate as calculated by the standard methods. Whether it is or is not "the healthiest city in the United States" is a matter of some doubt and less importance. Other cities could doubtless materially improve their published death-rates if, as we hope they will not, they were to copy the fallacious methods used by the Commissioner of Health of Minneapolis.

F. S. CRUM.